dihydrodipicolinate synthase, and an over-expressed lyseE gene of Corynebacterium glutamicum encoding lysine export carrier.

31. Bacteria of claim 30 further comprising an over-expressed lysC gene of Corynebacterium glutamicum encoding aspartate kinase.

32. Bacteria of claim 31, wherein said over-expressed aspartate kinase is resistant to inhibition by lysine and/or threonine.

II. REMARKS

PRELIMINARY REMARKS

After entry of the foregoing amendment, claims 1, 3, 16, 22, 23, and 27-32 will be at issue. Support for new claims 27-32 may be found throughout the specification as originally filed. Specifically, support for new claim 27 may be found in claim 1 as originally filed. Support for new claim 28 may be found in the specification on pages 10 and 11. Support for new claims 29-32 may be found in Examples 16-19 of the specification as originally filed. No new matter is believed to have been introduced herein by the foregoing amendment. Attached hereto is an appendix which sets forth a version of the claims with markings to show changes made.

In the official action, the examiner noted the submission of the applicants' information disclosure statement of October 18, 2001, and further noted that cited documents "OR" and "PR" were not matched with the application. In response, the applicants are enclosing herewith, supplemental copies of the missing, cited documents. As these documents were previously forwarded to the Patent Office (the applicants are in possession of a stamped receipt from the OIPE), the applicants submit that no fee is due for consideration of the documents. The applicants request that the examiner consider the enclosed documents and return (to the undersigned) a marked version of the Form 1449 submitted on October 18, 2002.

On page 2 of the official action, the examiner objected to claims 1-3 as being directed to, *inter alia*, non-elected subject matter, *i.e.*, the dapB gene. By the foregoing amendment, the applicants have removed the non-elected subject matter from the claims and therefore have rendered the rejection moot.

The examiner also objected to claims 4, 22, and 23 for non-use of the colon with respect use of sequence identification numbers. The applicants have amended claims 22 and 23 to comply with the examiner's request (claim 4 has been canceled herein).

PATENTABILITY REMARKS

Rejection Based Upon 35 U.S.C. §101

The examiner rejected claims 22 and 23 under 35 U.S.C. §101 for allegedly being directed to non-statutory subject matter. Essentially it is the examiner's assertion that the claims read on products of nature.

In response the applicants submit that the rejection is now moot in view of the foregoing amendment. Specifically, claims 22 and 23 have been amended to be directed to "isolated DNA." Therefore, the applicants respectfully request that this rejection be withdrawn.

Rejection Bssed Upon 35 U.S.C. §, Second Paragraph

The examiner rejected claims 1-4 under 35 U.S.C. §112, second paragraph for allegedly being indefinite. With respect to claims 1-4, the examiner alleged that the claims lack antecedent basis for the following limitations: "the dapA gene," "the lysC gene," "the lysE gene," and "the dapB gene," and "the MC20 or MA16 mutations." By the foregoing amendment, the applicants have amended claims 1 and 3 to either remove such terminology or have amended the claim to more clearly define the applicants' invention. Claims 2 and 4 have been canceled herein (without prejudice).

The examiner also rejceted claims 1-4 for use of the terminology, "enhanced." The examiner stated that the term "enhanced" is "unclear absent a statement defining to what the gene is being compared." The applicants have amended claims 1 and 3 to remove the terminology referred to by the examiner. As stated above, claims 2 and 4 have been canceled herein (without prejudice).

Claims 1-4 have been rejected for use of the language "together." It is the exmainer's position that it is unclear as to whether the term is meant to be interpreted as a corynebacteria with any or all of the recited genes. By the foregoing amendment, the applicants have removed the languge from claim 1 referred to by the examiner.

In view of the forgeoing amendment and remarks, the applicants note that the rejections based upon 35 U.S.C. §112, second paragraph are now moot and therefore the applicants respectfully request that this rejection of the claims be withdrawn.

Rejection Based Upon 35 U.S.C. §112, First Paragraph

The examiner rejected claims 1-4 under 35 U.S.C. §112, first paragraph as allegedly containg subject matter that was not described in the specification in such a way as to reasonably convey that the inventors were in possession of the claimed invention at the time of filing. With respect to claim 1, the examiner noted that the claim is directed to corynebacteria comprising a genus of enhanced pyc genes from any source and optionally comprising any of a genus of dapA, lysC, and/or lysE genes from any source.

In respone the applicants submit that as amended herein, the claims 1 and 3 (claims 2 have been canceled by amendment herein) are fully supported by the specification. Specifically, claims 1 and 3 have been amended to define the foregoing genes as genes of *corynebacterium glutamicum*.

Claims 1-4 were also rejected under 35 U.S.C. §112, first paragraph as alledgely being broader than the enabling disclosure. Specifially, while being enabled for deposits DSM 12872, DSM 12867, and DSM 12868, the specification does not (allegedly) provide enablement for any corynebacteria comprising any pyc gene enhanced by any method and comprising any of the foregoing genes.

The applicants have canceled claims 2 and 4 and have amended claims 1 and 3 to be directed to (*inter alia*) the pyc gene *corynebacterium glutamicum* and the dapA gene of *corynebacterium glutamicum*.

Claims 16, 19, 20, 22, and 23 were rejected under 35 U.S.C. §112, first paragraph as containing subject matter that was not described in the specification to enable one to make and or use the invention. Specifically, the examiner required submisison of a declaration of a biological deposit. In response, the applicants sill submit a "Declaration of Biological Deposit in Compliance with the Budapest Treaty" shortly under separate cover.

In view of the foregoing amendment and remarks, the applicants respectfully request that the rejetcion of the claims based upon 35 U.S.C. §112, first paragraph be withdrawn.

Rejection Based Upon 35 U.S.C. §103(a)

The exmainer rejected claims 1 and 2 under 35 U.S.C. §103(a) as being unpatentable over DE 19831609 in view of EP 0435132 and EP 0854189. The examiner alleged that it would have been obvious to one of skill in the art to combine the teachings of DE 19831609 for a C. glutamicum with an expression vector for co-expression of pyc and dapA and/or lysC genes as methods of co-expressing genes in C. glutamicum for increased yields of an amino acid are well known in the art, as demonstrated by EP 0435132 and EP 0854189.

The examiner rejected claims 3 and 16 as being unpatentable over over DE 19831609 in view of EP 0435132 and EP 0854189, in further view of DE 195548222. The examiner alleged that it would have been obvious to combine the teachings of the foregoing documents for a C. glutamicum with an expression vector for co-expression of the aforementioned genes.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all of the claim limtations.

The applicants respectfully submit that the cited documents neither alone nor in combination teach or suggest the simultaneous enhancement of either the pyc and dapA and lysE or pyc and dapA and lysC and lysE, via use of the dapA promoter selected from the group consisting of: the dapA promoter comprising the MC20 mutation as set forth in SEQ ID NO:5 and the dapA promoter comprising the MA20 mutation as set forth in SEQ ID NO:6. The applicants submit that the examiner has failed to establish a *prima facie* of obviousness. Therefore, the applicants respectfully request that the rejection of the claims based upon 35 U.S.C. §103(a) be withdrawn.

Double Patenting

The examiner rejected claims 19 and 20 under 35 U.S.C. §101 as claiming the same invention as that of claims 12 and 13 of U.S. Patent No. 6,200,785 (respectively). The applicants submit that this rejection is now moot in that claims 19 and 20 of the present application have been canceled (without prejudice) herein.

The examiner rejected claims 1, 3, and 4 over claims 1, 4, and 5 of U.S. Patent No. 6.200,785. The applicants with address this issue under separate cover shortly.

CONCLUSION

In view of the foregoing, and notwithstanding any supplemental documents that will be submitted under separate cover, the claims are now believed to be in form for allowance, and such action is hereby solicited. If any point remains in issue which the examiner feels may be best resolved through a personal or telephone interview, please contact the undersigned at the telephone number listed below.

Respectfully submitted,

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Enclosure: Appendix

APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

The claims are amended as follows:

1. (Amended) L-Lysine-producing [corynebacteria with] bacteria of the species Corynebacterium glutamicum comprising an [enhanced] over-expressed pyc gene[, in which additionally genes chosen from the group consisting of the lysC gene, the lysE gene and the dapB gene, individually or together, are enhanced] of Corynebacterium glutamicum encoding pyruvate carboxylase and an over-expressed dapA gene of Corynebacterium glutamicum encoding dihydrodipicolinate synthase, wherein over-expression of said dapA gene is achieved by using a dapA promoter selected from the group consisting of: the dapA promoter comprising the MC20 mutation as set forth in SEQ ID NO:5 and the dapA promoter comprising the MA20 mutation as set forth in SEQ ID NO:6.

3. (Amended) [Corynebacteria as claimed in] Bacteria of claim 1, in which the [dapA gene, the dapB gene and] the lysE gene [are enhanced] of Corynebacterium glutamicum encoding the lysine export carrier is over-expressed.

22. (Amended) An isolated DNA [capable of replication, with] comprising the nucleotide sequence [MC20] shown in SEQ ID No[.]: 5.

23. (Amended) An isolated DNA [capable of replication, with] comprising the nucleotide sequence [MA16] shown in SEQ ID No[.]: 6.

Claims 2, 4, 19 and 20 are cancelled and claims 27-32 are added.

End of Appendix